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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,663	12/28/2000	Deog Jae Lee	1689-0156P	8705
2292	7590	04/08/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			LAO, LUN S	
		ART UNIT	PAPER NUMBER	
		2643	6	
DATE MAILED: 04/08/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/749,663	LEE, DEOG JAE
	Examiner Lun-See Lao	Art Unit 2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 28 December 2000.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-9 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-9 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_\_.

## DETAILED ACTION

### *Introduction*

1. This is response to the preliminary amendment filed on 12-28-2000. Claim 7-9 have been added and claims 1-9 are pending.

### *Claim Objections*

2. Claim1 is objected to because of the following informalities: Claim 1 recites "exhaust • intake valve" which the examiner doesn't understand. Appropriate correction is required.

Claims 7-9 are objected to because of the following informalities: Claims 7-9 recites "exhaust □ intake valve" which the examiner doesn't understand. Appropriate correction is required. The words as objected above are also appear in the specification (pages 1 - 4). Please also make a correction.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomisawa (US PAT. 5,850,458).

Consider claim1 Tomisawa teaches an acoustic wave sensor (see fig.7, 12) for detecting a contact state between a exhaust - intake valve (7) and a valve seat of valve train for a vehicle engine (1) comprising an acoustic wave generating means (45) and an acoustic wave sensing means (12,46) (see col. 6 line 44-col.7 line 15).

Consider claim 2 Tomisawa teaches the acoustic wave generating means (see fig.7, 9) is inherently consisted of an acoustic wave oscillator, a first amplifier (see fig.8, 56) for amplifying the acoustic wave of the acoustic wave oscillator, and a speaker (see fig.8, 45) for diverging the acoustic wave of the first amplifier (see fig.8, 56)(see col.6 line 44-col.7 line 15).

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomisawa (US PAT. 5,850,458) in view of Fischer (US PAT. 5,748,748).

Consider claim 3 Tomisawa teaches the acoustic wave sensing means (see fig.7 12,46) is consisted of an acoustic wave sensing part for sensing an acoustic wave diverged through the speaker (45) and converting the acoustic wave into an electric signal, a second amplifier (see fig.8, 51) for amplifying a signal of the acoustic wave sensing part (46) (see col.6 line 44-col.7 line 15), Tomisawa also indicates some signal

output from the second amplifier (see fig.8, 51) in some diagrams (see figs. 9-14 and col.7 line 6-col.9 line 48); but Tomisawa does not clearly teach a display part for displaying a signal output from the second amplifier.

However, Fischer teaches a display part for displaying (see fig.5, 258) a signal output from the second amplifier (218, see col.10 line 55-col.11 line 25).

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tomisawa into Fischer to provide a conventional display device for friendly using.

Consider claims 4 and 7-8, Tomisawa teaches a speaker is installed at a bending portion of a tubular passage (see fig.7, 45) and said acoustic wave sensing part (12,46) is installed a site on the contact surface between the valve and the valve seat; but Tomisawa does not clearly teach the acoustic wave sensing part is installed a site on the contact surface between the valve and the valve seat.

However, Fischer teaches the acoustic wave sensing part (see fig.1,22) is installed a site under the contact surface between the valve and the valve seat (see col. 7 line 58-col.8 line 5).

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tomisawa into Fischer to provide an actively reducing noise in vehicle for market demand.

Consider claims 5-6 and 9, Tomisawa teaches the acoustic wave sensing part comprises a condenser microphone for sensing the acoustic wave (see fig.7 ,46 col.6 lines 43-65); and a sound shielding member (see fig.1, 42), where said speaker (45) is

installed, is separately mounted to a port part for preventing the acoustic wave from leaking.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Izutani (US PAT5,664,548) and Okabe (US PAT. 4,770,137) are recited to show other related the acoustic wave sensor for detecting contact state between a valve and a valve seat for a vehicle.

8. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

or faxed to: (703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (703) 305-2259. The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao,Lun-See  
Patent Examiner  
US Patent and Trademark Office

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Art Unit: 2643

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*Duc Nguyen*  
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PRIMARY EXAMINER